

# ICAT User's Manual

AWIPS Release 5.2.2

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# 1. Introduction

## 1.1 Purpose

ICAT is a new tool in AWIPS R5.2.2 which will be used to assist in preserving site customizations across AWIPS upgrades.

ICAT identifies customizations made to configuration files and restores those local customizations after the upgrade. It operates on a set of files that are known to be customized by sites (such as the Volume Browser files, or the “style” rules files), but which are also subject to modification by AWIPS software development organizations - thus causing conflicts and forcing sites to spend precious time hand merging in their customizations after the upgrade.

For each release, ICAT will be configured to process the subset of files known to have changed in the baseline for that release; thus it may not always process the entire set of files identified by regional focal points.

## 1.2 How ICAT Works

The tool is executed in two parts: one before the upgrade, the other after. The part which runs before the upgrade is referred to as *pre-install ICAT*. The part which runs after the upgrade is referred to as *post-install ICAT*.

### 1.2.1 Pre-install

The pre-install ICAT is used to find differences between currently operational files and their counterparts originally delivered as part of the previous release. In other words, pre-install ICAT will identify customizations applied by the site to the previous release’s delivered (baseline) files. It then examines the content of the corresponding files being redelivered as part of the new release, and applies the site customizations to them, generating site customized versions of the new baseline files. These new customized files are subsequently activated by the post-install ICAT. Pre-install ICAT will also highlight any conflicts between local customizations (including override files in certain subdirectories) and changes appearing in the new baseline.

### 1.2.2 Post-install

Post-install ICAT is run after the AWIPS upgrade has been completed. This part copies the files created by pre-install ICAT into their runtime locations, and identifies any localization tasks that need to be run. Once re-localized, sites can resume operations with their local customizations.

### 1.2.3 What ICAT Does With Configuration Files

The following table summarizes how ICAT handles configurations files over the course of an install.

Files	Description	Pre-install	Post-install
5.2.1 Customized	These are the configuration files used by the AWIPS software.	ICAT makes backups in a separate directory. Detects customizations and creates “merged files”	
Merged Files	These are files intended to be used with 5.2.2. They reflect both site and baseline changes.	ICAT creates these based on comparisons between the site and baseline files. They are stored in a separate directory, but are not used until 5.2.2 is installed.	ICAT “activates” these files which have been stored in a separate directory by copying them into the proper AWIPS directory.
5.2.2 Baseline	These are configuration files that are installed with 5.2.2.	ICAT uses these to make merged files for 5.2.2	ICAT makes backups of 5.2.2 baseline before copying over them with a merged file.

### 1.3 Files Handled by ICAT

If any of these files are not actually delivered with 5.2.2, they will not be handled by ICAT beyond making a pre-install backup.

Directory DS:/awips/fxa/bin/	Updated in 5.2.2?	Comments
fxa-data.purge	yes	Additions made to these files will be placed in the site add-on file, fxa-data-addons.purge.
Directory DS:/awips/fxa/data/	Updated in 5.2.2?	Comments
acq_patterns.txt	yes	If changes have been made to acq_patterns.txt, you will see a message warning that this is not supported and that you should move your additions to <i>LLL-acqPatternAddOns.txt</i>
disk.cfg	yes	
orpgInfo.txt	no	
Directory DS:/awips/fxa/data/vb/	Updated in 5.2.2?	Comments

browserFieldMenu.txt, browserPlanViewMenu.txt, browserTimeHeightFieldMenu.txt, browserXsectFieldMenu.txt	yes	
<b>Directory DS:/awips/fxa/data/localization/ nationalData</b> (realizations and LLL/LLL- where allowed)	Updated in 5.2.2?	Comments
acq_patterns.template	yes	Additions to this file will be merged in to the site's acqPatternAddOns.txt
hydro_acq_patterns.txt	yes	Additions to the file will <b>not</b> be merged in to acqPatternAddOns.txt. All changes made to hydro_acq_patterns.txt merged in to the 5.1.2 version of hydro_acq_patterns.txt.
virtualFieldTable.txt	yes	
activeGridSources.txt	yes	
dataFieldTable.txt		
dataLevelTypeTable.txt	yes	
gridSourceTable.template	yes	
dataMenus.txt, backgroundMenus.txt	yes	
dataInfo.manual, depictInfo.manual	yes	
*Style.rules	yes	
<b>Directory /DS:/awips/fxa/data/localization/LLL/LLL-</b>	Updated in 5.2.2?	Comments
mainConfig.txt	some sites	
hydroSiteConfig.txt	no	

## 2. Installing ICAT

Because ICAT is used before the main AWIPS install procedure it must be installed separately. Before you run the ICAT install program, you need to choose where to install ICAT (section 2.1). After this, run the install program. Most sites will install from the AWIPS CD (section 2.2). Sites involved in beta testing will most likely download ICAT from the NOAA1 FTP server (section 2.3).

### 2.1 Choosing and Install Location

The install program allows you to install ICAT two different ways:

- On every server and workstation in `/awips/fixa/data/localization/ICAT`
- On the NFS mounted directory `/data/local/ICAT`

If you have enough disk space, use the first option. After you have installed and run the pre-install phase of ICAT, make sure you have not exceed the disk space requirements described in the AWIPS install instructions.

To use the first option, pass “`-awipsfixa`” to the install program (described below). To use the second option, pass “`-datalocal`”.

### 2.2 Installing ICAT from the CD

#### 1. Mount the “WFOA, LAPS, NMAP, UX, RT” CD.

Insert the “WFOA, LAPS, NMAP, UX, RT” CD into the CD-ROM drive on the DS1. Open up a telnet window on any workstation and login as **root**. rlogin to DS1 from the workstation (still as root). Run the following command:

For K class servers:

```
mount /dev/dsk/c3t2d0 /cdrom
```

For D class servers:

```
mount /dev/dsk/c1t2d0 /cdrom
```

#### 2. Still as root, run the install program.

```
cd /cdrom/awips/fixa/data/localization/ICAT  
./installPackage -awipsfixa  
(or -datalocal)
```

You will see the following output. (The exact number of lines will depend on the number of workstations at the site and the install mode.)

```
Checking the distribution...
Installing ICAT on: ds1 as1 as2 ws1 ws2 ws3
Copying files...
ds1
as1
as2
ws1
ws2
ws3
Finishing...
ds1
as1
as2
ws1
ws2
ws3
Cleaning up...
```

If you see error messages, refer to the troubleshooting section.

## 2.3 Downloading ICAT from NOAA1

**Note:** Only perform these steps if you are instructed to do so.

1. Open up a telnet window on any workstation and login as **root**. rlogin to DS1 from the workstation (still as root).
2. Change to a temporary directory. For example:

```
mkdir /tmp/atmpdir
cd /tmp/atmpdir
```

3. Connect to the NOAA1 FTP site and login as user ftp.

```
ftp 165.92.25.15
...
ftp> binary
ftp> prompt
ftp> cd /pub/ICAT/5.2.1-to-5.2.2
ftp> mget *
```

4. Quit the FTP program.

```
ftp> quit
```

5. From the directory chosen in step one, run the install program:

```
./installPackage -awipsfxa  
(or -datalocal)
```

### 3. Using ICAT Before the AWIPS Install

**Note:** the following instructions should only be executed by the site ESA or the site AWIPS focal point.

#### 3.1 Overview

In the pre-install phase, ICAT will scan configuration files for customizations and create new files that can be used with 5.2.2. Section 3.2 explains how to start ICAT on the site's servers and workstations. While ICAT is running, you will be prompted to answer questions about how to handle your customizations. These prompts are explained in section 3.3.

#### 3.2 Starting ICAT

The ICAT program must be run on a server or workstations to detect and preserve the customizations that have been made on that device. In order to make running ICAT on the various servers and workstations easy, there is a "Launcher" program that can start ICAT on a given machine without having to type commands. The launcher itself is run on DS1 but displayed on a workstation.

To start the launcher, do the following:

1. On a workstation, open a new telnet window.
2. Rlogin into DS1 and become root:

```
> rlogin ds1  
...  
> su -
```

3. Start the launcher:

```
> /awips/fxa/data/localization/ICAT/icatLauncher  
(or /data/local/ICAT/icatLauncher)
```

4. You will probably see the following message. If you do not, go to step 5.

```
At which workstation are you sitting?  
1. ws1  
2. ws2  
3. ws3  
4. xt3
```



5. 1x1

6. 1x2

Enter a number from the list. If the workstation isn't on the list, enter the host name of the workstation instead.  
-->

Enter the number corresponding the workstation you are using. If it is not on the list, enter the host name or an IP address. Go to step 6

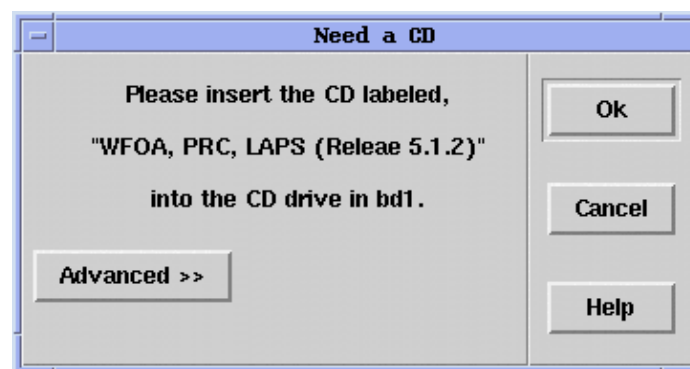
5. If you see the following message, you do not need to do anything else to start the launcher.

Assuming you are sitting at *n.n.n.n...*  
If this is not the case, go over to *n.n.n.n* and stop the Launcher (or you may just use the launcher over there).

If you see other messages and are returned to the command prompt, consult the troubleshooting section.

6. If you see errors about “connecting to the display” and no windows appear, log into to workstations and run “xhost +”
7. Insert the WFOA CD.

You will see a window prompting you for a CD-ROM. Insert the CD and press “Ok”. You do not need to mount the CD. If you see error messages, consult the troubleshooting section.



8. You will see a window showing the servers and workstations on your site. To run ICAT on a given device, click on its icon. The icon will change to green and stay that way while ICAT is running.

Please note the following.

- It may take up to half a minute for ICAT to start.
- The server or workstation must have a directory named “cdrom” in the root directory. The Linux workstations do not have this directory by default.

You can use the “Pre-install” and “Post-install” check boxes as record which steps have been done on which hosts. The boxes are not used by the program at all.

The next section explains which servers and workstations to run ICAT on.



### 3.3 Running ICAT on Servers and Workstations

In general, you must run ICAT on each server and workstation that has customizations that you want to preserve. There are two exceptions:

- ICAT is not run on ds2. This server is handled by running ICAT on ds1.
- If you have a group of workstations with the exact same configuration, you only need to run ICAT on one of them. In the post-install phase ICAT can copy the merged files to the other workstations. (This is explained in section 4.3.1)

### 3.4 Tasks

When ICAT starts you will see the following window:

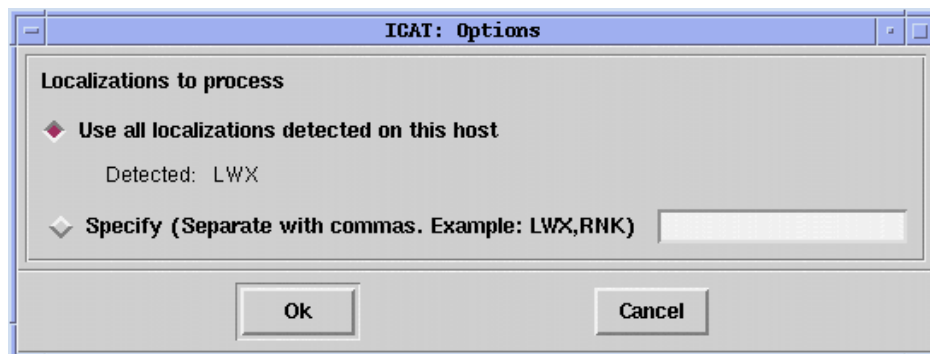
From here, you can set options (section 3.4.1) or begin the pre-install tasks by clicking the “**Continue**” button. Once the pre-install tasks have finished, you will be returned to this window. You can then examine the files created by ICAT by pressing “**View Merged Files...**” (section 3.4.5).

### 3.4.1 Controlling Which Localizations are Scanned

To set options, click “**Set Options...**” from the main window.

By default, ICAT will scan all localizations that are in use on the host. This is determined by looking at the subdirectories of /awips/fixa/data/localizationDataSets. If you want ICAT to only scan certain localizations, select “Specify” and type the list of localizations identifiers (separated by commas) into the box.

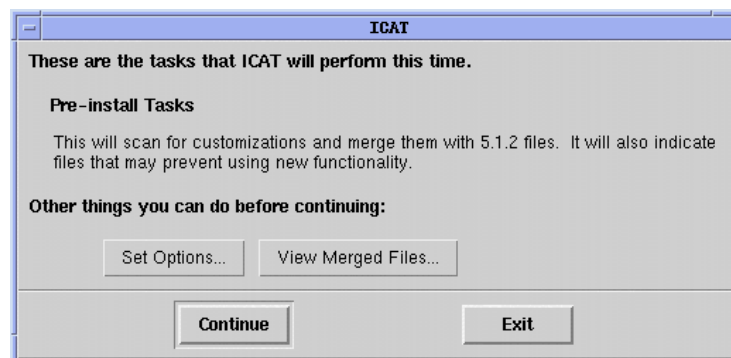
Press “OK”.



### 3.4.2 Conflicting Override Files

This dialog will appear if you have a custom localization file that will override a file that is being updated in this release. Here are some things you can do if this happens:

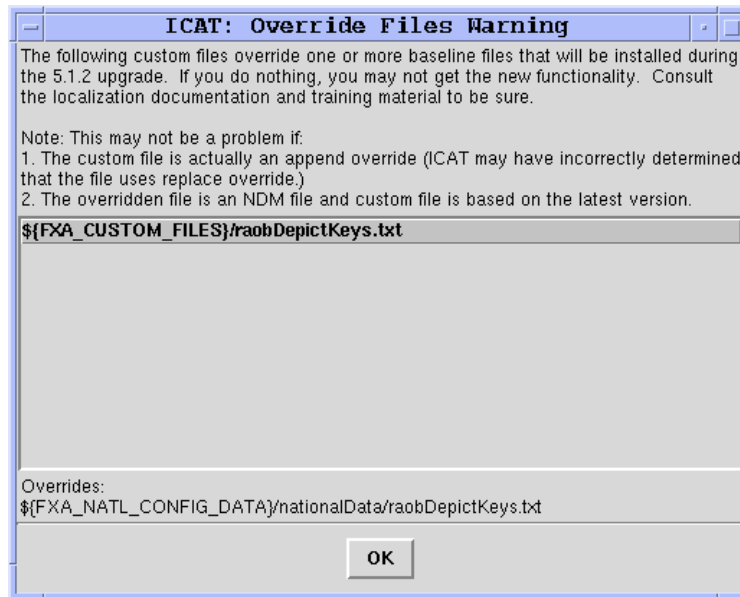
- **Merge your customizations into the 5.2.2 file after installing 5.2.2.**
- If the custom file supports the '#append' directive (consult localization



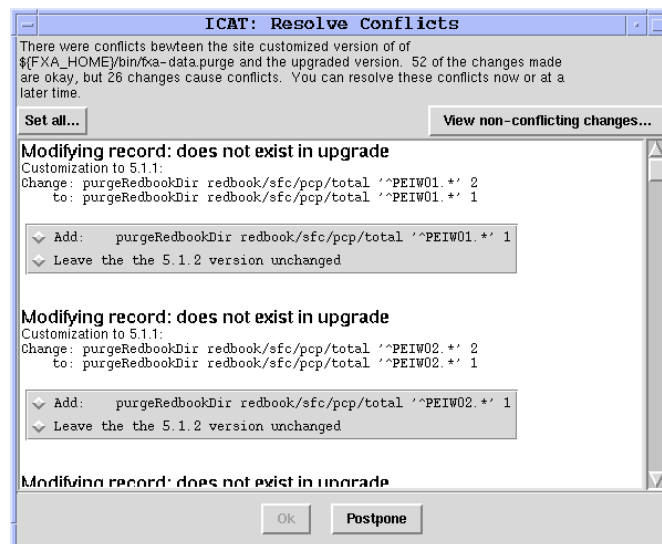
documentation), use the directive and reduce the custom file to contain only customizations.

- Just remove the custom file from the runtime system (rename it or move it to location where it will not be used.)

When you are finished viewing this information, press “OK”.



### 3.4.3 Resolving Conflicts Between Customized and Baseline Files



This dialog appears when a customization you made to a 5.2.1 file differs from a change made to that baseline file from 5.2.1 to 5.2.2. All the conflicts for a given file will be

displayed in the same dialog. If you want to see the customizations that did not cause conflicts, press **“View non-conflicting changes...”**.

There will be a message describing each conflict. Here are some examples (“record” generally means “line in a text file”).

- “Modifying record: does not exist in upgrade”: A customization was made to a record to a 5.2.1 file, but the equivalent record is not present in 5.2.2.
- “Deleting record: upgrade version differs from old version”: The customization was to delete an record, but this record has changed in 5.2.2. You should consider whether or not you want the new functionality.
- “Modifying record: new version differs from old version”: You customized an record that was also changed in the baseline. You must choose which version (customization for 5.2.2 baseline) to use.
- “Adding record: exists in new version and is different”: You added an record, but a similarly record was also added to the baseline from 5.2.1 to 5.2.2. You must choose which version (customization for 5.2.2 baseline) to use.

Under the message is the site customization and the version of the conflicting item in the 5.2.2 file. Under that, there is a gray box containing options to resolve the conflict. Generally, the first option is a change to apply to the item in the 5.2.2 baseline file and the second option is to leave the item unchanged. Choose an option by clicking on it. If you want to make the same decision for many conflicts, press the **“Set all...”** button and select a command from the menu.

If you can resolve all of the conflicts now, do so and press **“OK”**. Otherwise, press **“Postpone”**. You will be able to resolve the conflicts at a later time (before the install). You can also leave the conflicts unresolved and ICAT will not take any further actions for this file.

**NOTE:** Some NDM files may show a large number (hundreds) of changes. If this happens, you may be better off hand-merging your changes.

#### **3.4.4 Handling acq\_patterns.txt**

If you have modified /awips/fixa/data/acq\_patterns.txt directly without making the supporting changes in appropriate files, you will be given a warning about this. The window displays the patterns that will be lost in the next “auxFiles” localization. You can select the patterns with the mouse and paste them into another window.

#### **3.4.5 Viewing Merged Files**

**Note: Before activating a file, you should examine it and make sure it contains your customizations. The best time to do this is before you do the AWIPS install.**

After the pre-install tasks are done, you will be returned to the main window. You can

now examine the files that ICAT has created. Click “**View Merged Files...**” in the main window.

You will see a list of files that ICAT has created. To view a file, click on its name.

A new window will appear which displays the contents of the file that ICAT has created. At the top of the window is a message explaining how the file was created. Note that there are two methods ICAT uses to generate files.

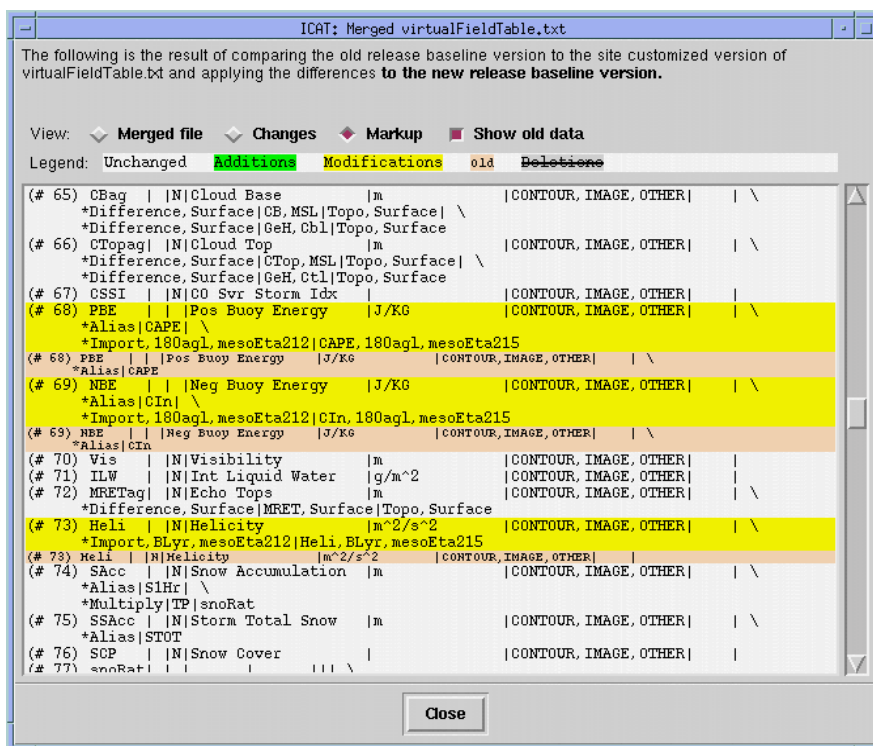
- Apply site customizations to the new baseline file.
- Apply differences between the old and new baseline file to the current customized file.

ICAT usually chooses the method that will make the least number of changes to the current file.

There are several ways to display the file.

- **Merged file:** This is the exact text of the file.
- **Changes:** This is the list of changes that were applied to the original file
- **Markup:** This shows the merged file which color-coded changes. In some cases the text may not be exactly the same as what is in the file. For example, the markup for activeGridSources.txt displays each source name on a separate line.

The “**Show old data**” checkbox will cause the old versions of modified items to be displayed under the new versions.



### 3.4.6 Correcting Mistakes in Merged Files

If you find that a file created by ICAT is missing some customizations or has other problems, you may manually edit it. In the post-install phase ICAT will use this edited file.

You can find the merged files in `ICAT/Work/<hostname>/rt-out/`. Note that if you run the pre-install ICAT again, your edits may be lost.

## 3.5 Running ICAT again

You can run pre-install ICAT again to finish resolving conflicts or restart the customization scan from the beginning.

When you press “Continue” in the “Select Tasks” dialog, you will be prompted with “You have already attempted some of these tasks. How should ICAT resume?”

Choose one of these options:

- **“Just resume incomplete tasks”:** Resume tasks that were postponed or had errors. Tasks that were completed will not be done again. That means that if you changed the relevant file since the last time you ran ICAT, the changes will not be noted.

- **“Resume and redo decision making processes”:** If you were prompted to make decisions for a tasks, you will be prompted again.
- **“Start over completely”:** Redo all tasks.

## 4. Using ICAT After the AWIPS Install

### 4.1 Overview

During this phase, you will activate the files ICAT has created in the pre-install phase. After activating the files, you may need to run a localization.

### 4.2 Starting ICAT

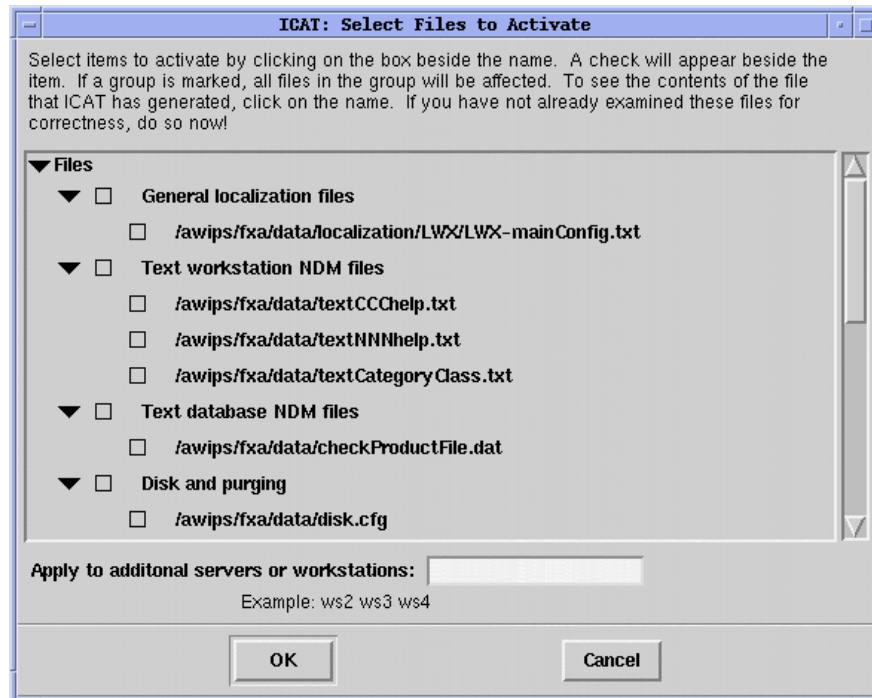
Start ICAT as you did before (section 3.2). Note that you do not need the AWIPS CD for the post-install tasks. When ICAT starts up, you will now see a window describing the post-install tasks. Click **“Continue”** to begin.



## 4.3 Tasks

### 4.3.1 Activating Files

1. You will see the “Activate Files” dialog.



2. If you have not already done so, examine the files you want to activate by clicking on the names.
3. Select the files you want to activate by clicking on the boxes next to the file names.
4. If you are running ICAT on a server and there are other servers with the same configuration, you can enter the server names in the box labeled, “**Apply to additional servers or workstations**”. If you are running ICAT on a workstation and there are other workstations with the same configuration you may enter the names into the box.
5. Press “**OK**”. You may see a message telling you to run localization. You will then see the message “Done.”

### 4.3.2 After Activating Files

After the merged files have been activated, you may see a message saying that you need to run a localization. You may copy and paste the localization command line into a terminal window. Remember to become user fxa and set up the environment as needed.

You should now test the relevant AWIPS applications to make sure the configuration files work correctly.

### 4.3.3 Restoring baseline files

If there are problems after activating files, you may restore the baseline files.

1. Start ICAT on the server or workstation on which you want to restore the baseline.
2. Click “**Continue**” on the main window.
3. You will be asked whether you want to activate more files or restore baseline files. Press “**Undo activations**”.



4. You will see a window similar to the one used to activate files. Select files to restore to the baseline by clicking on the boxes next to the file names.
5. Press “**OK**”.

## 5. Important Information

### How can I find out what ICAT has done?

There is a log file for each server and workstation. It is `ICAT/Work/<hostname>/log`. The log file is appended to every time ICAT is run. Look for “Log started on” entries.

### Where are the backups of the 5.2.1 baseline files?

They are in `ICAT/backup-5.2.1/<hostname>/`.

### Where are the configurations files created by ICAT that will be used after 5.2.2 is installed?

They are in `ICAT/Work/<hostname>/rt-out/`.

### ICAT has created a merged file that I know will not work. What can I do?

There are two things you can do:

- If the merged file only needs a few corrections you can edit it manually. In the post-install phase, ICAT will activate the file with your edits. You can find the merged files in `ICAT/Work/<hostname>/rt-out/`. Note that if you run the pre-install ICAT again, your edits may be lost.

- If the file is completely wrong or you do not want to carry over the customizations into the next release, simply do not mark the file for activation.

### What happens to 5.2.2 baseline files when ICAT activates merged files?

First, ICAT makes a backup of the baseline file *in that file's directory*. This is different from the pre-install backups. The backup is given the name `<original filename>-ICAT-<timestamp>`.

## 6. Troubleshooting

### 6.1 While Running the ICAT Install Program

If you see any of the following error messages, there is a serious problem and ICAT will not run.

- `mkdir: cannot access /awips/fxa/data/localization: Permission denied`
- `rcp: /awips/fxa/data/localization/ICAT: Permission denied`
- `/awips/fxa/data/localization/ICAT/finish_install.sh: Command not found.`
- `/awips/fxa/data/localization/ICAT/cdrom-dir: No such file or directory.`

The following messages can be ignored:

- `mkdir: cannot create ../bsln-dir-5.2.1: File exists`
- `../bsln-arch-5.2.1.tar.gz: No such file or directory`  
`Tar: blocksize = 0; broken pipe?`

### 6.2 While Starting ICAT

***"An error occurred while trying to set up the CD: /cdrom: no such file or directory"***

This happens on "lx" workstations. Create a directory called "cdrom" in the root directory on the workstation and try again.

***"Could not find last configuration in the state database. You will need to set the configuration again."***

If you see this message, you should press "**Continue**" and fill in the options as described in *Dialog: Options*

***"The following environment variables have not been set..."***

Verify that `/awips/fxa/bin/readenv.sh` is working and sets the specified environment variables.

***"There do not seem to be any release files in '/cdrom'. Make sure the WFOA CD (and possibly ds1:/cdrom) is mounted according to the install instructions."***

Make sure the CD is mounted as described above. Test if this command generates any errors:

```
ls /cdrom/awips/fxa/data/localization
```

If you need to change the CD and you are trying to run ICAT on a host other than DS1, you will need to:

- Unmount /cdrom on the workstation as well as DS1.
- Run the **export fs** command again after mounting the correct cdrom on DS1.
- Run the mount ds1:/cdrom command again.

If the error message references a directory other than “/cdrom”, ICAT may not have been installed correctly.

***"Could not find NDM files in /data/local/nationalData. You should place the NDM files that will be used in release 5.1.2 in that directory. If you do not, ICAT will not be able to preserve customizations to any NDM files."***

ICAT expects new NDM files to be placed in /data/local/nationalData. If you placed the files somewhere else, you can copy them to /data/local/nationalData and press “**Continue**”. If you are actually not updating any NDM files or do not want ICAT to preserve changes made to the NDM files, just press “**Continue**”.

## 6.3 While Running Pre-install Tasks

The following errors messages may be displayed while pre-install ICAT is running. If you see one of these errors, you will usually be able to continue by pressing “**OK**”. If you press “**Quit**”, you can still run ICAT again, continuing as if you had pressed “**OK**”.



***"Operation failed (isolated error)..."***

The program could not complete some part of a task. This is usually due to a

missing data file. ICAT will not be able to preserve the customizations made to the file it was working on, but can otherwise continue.

***"Runtime error (unexpected, but recoverable)..."***

The program could not complete some part of task due to an unexpected error. This may be the result of a logic error. It should be safe to continue, however. As with the "Operation failed" error, ICAT will not be able to be able to preserve the customizations to the file it was working on.

***"Serious error..."***

The program cannot recover from this type of error and will exit after you acknowledge the message. It is safe to start the program again.

## **6.4 While Running Post-install Tasks**

**"The following errors occurred while trying to access the servers and workstations you specified:..."**

*"<host>: remsh failed:..."*

A test remote command on <host> failed.

*"<host>: backup utility (backup\_util.py) did not work and could not install it"*

There may be a problem with the Python installation on <host>.

If these occur, try to make sure it is possible to use the "remsh" command to access the workstation and Python is working properly on it. After you acknowledge the error message, the **"Select Files to Restore"** dialog will be shown again.

Any other error message probably indicates that files were not properly restored.